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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/067,266	02/07/2002	Toshio Morita	Q63212	6691

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SUGHRUE MION, PLLC  
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WASHINGTON, DC 20037

EXAMINER
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GRAY, JILL M

ART UNIT	PAPER NUMBER
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1774

DATE MAILED: 10/17/2003

*C*

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/067,266

Applicant(s)

MORITA ET AL.

Examiner

Jill M. Gray

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Response to Amendment***

The rejection of claims 1-5 and 11-20 under 35 U.S.C. 103(a) as being unpatentable over Dasche t al, 5,433,906 or European Patent Publication 583,062 A1 each in view of Stempin et al, 5,132,254 is withdrawn in view of applicants' amendments.

### ***Allowable Subject Matter***

Upon further consideration, the indicated allowability of claims 6-11 is withdrawn. A rejection on the merits of these claims follows.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 5-11, 15-16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent Publication 583,062 A1 (Harada) in view of PCT Publication WO 00/58536 (Nishimura et al, English equivalent 6,489,026 B1).

Harada teaches vapor grown carbon fibers and composite articles produced therefrom. The fiber diameter is 5 $\mu$ m or smaller and the fibers can be mixed with plastic material, rubbery material, ceramic material, or metallic material, per claims 1, 11, and 16. See page 3, and lines 28-29 and 54-57. The fibers can be prepared by heating the fibers at a temperature of 2,000°C or higher in an atmosphere of an inert gas such as

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nitrogen or argon, as required by claims 6-8. See page 4, and lines 10-35. Harada is silent as to a boron concentration and the fibers having a hollow part in the center.

Nishimura teaches vapor grown carbon fiber containing boron crystals. The fibers have a diameter of  $1\mu$  or less a bulk density of  $0.05\text{ g/cm}^3$  and is produced by the method of providing carbon fibers produced in the vapor phase, adding boron or a boron compound, compressing and heat treating at a temperature of  $2000^\circ\text{C}$  or higher, as required by claims 1, 6-7, and 9-10. See abstracts. The amount of boron in the carbon fibers is 0.1-3 mass% which is within applicant's range. The carbon fiber improves electric and thermal conductivity and imparts strength to ceramics, resins and metals.

It would have been obvious to modify the teachings of Harada by substituting his vapor grown carbon fibers with the carbon fibers taught by Nishimura in order to obtain the efficacious properties associated therewith when employed in a composite member, namely, strength and/or electric and thermal conductivity. As to the vapor grown carbon fibers being hollow, this is an inherent proper of vapor grown carbon fibers, said fibers being known in the art to have an annular or concentric configuration (note Nishimura '026, column 1, lines 30-41). Accordingly, this limitation is not construed to be a matter of invention. As to the limitation requiring that the surface be partially or entirely coated with an electrically insulating material, it is the examiner's position that compounding the vapor grown carbon fibers with the matrix material, specifically a rubber material, necessarily results in fiber surfaces that are partially or entirely coated with an electrically insulating material. Regarding claims 6-11, which require heat-treating in the

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presence of nitrogen. Harada, as set forth previously, teaches heat-treating in the presence of an inert gas such as nitrogen or argon. This teaching would have provided direction to the skilled artisan to prepare vapor grown carbon fibers using a process that includes heat-treating at a temperature 2000°C wherein nitrogen is used as the inert gas with the reasonable expectation of success. As to the specific resistivity and heat conductivity, because Harada teaches forming his vapor grown carbon fibers in the same manner as does applicants, it is the examiner's position that these properties are inherent.

As a result the combined teachings of Harada and Nishimura would have rendered obvious the invention as claimed in claims 1, 5-11, 15-16 and 20.

Claims 2-4, 12-14, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent Publication 583,062 A1 (Harada) in view of PCT Publication WO 00/58536 (Nishimura) as applied to claims 1, 5-11, 15-16 and 20 above, and further in view of Chung 5,643,670.

Harada is as set forth above but does not teach boron nitride as the insulating material. Chung teaches a particulate carbon complex comprising vapor grown carbon fibers impregnated with a metal catalyst, and heated in a nitrogen-containing atmosphere which are used to form composites. The composite matrix materials can be metals, ceramics, glasses or polymers, and more specifically, boron nitride. It would have been an obvious expedient to the skilled artisan at the time the invention was made to use as the matrix material of Harada any matrix materials known in the art, such as boron nitride, as taught by Chung.

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Therefore, the combined teachings of Harada, Nishimura, and Chung would have rendered obvious the invention as claimed in present claims 2-4, 12-14, and 17-18.

***Response to Arguments***

Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

No claims are allowed.

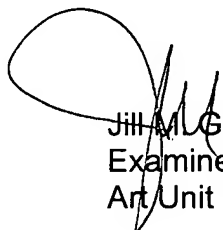
***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jill M. Gray whose telephone number is 703.308.2381. The examiner can normally be reached on M-F 10:30-7:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 703.308.0449. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.308.0651.

  
Jill M. Gray  
Examiner  
Art Unit 1774

jmg